

A Summary of the Research on Visualization of Baijiu Culture

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Abstract

Baijiu is an important intangible cultural heritage of the Chinese nation. Baijiu culture is very rich in connotation and extension, but consumers lack of awareness of Baijiu culture, which restricts the development of Baijiu industry and the internationalization of Baijiu. Big data in Baijiu culture has many types of data and complex relationships. It needs to be combined with cultural visualization technology to effectively display it. This paper first classified big data in cultural and analyzed its data characteristics, and then introduced the latest research results in the field of visualization in culture. This paper focused on five visualization presentation methods of big data in Baijiu culture, including text data, multidimensional data, network data, time series data, and geospatial data, gave specific application scenarios and a list of cultural visualization methods comparison. Finally, according to text data visualization, time series data visualization, and geospatial data visualization techniques, the visualization in Baijiu culture had been designed from four different aspects: the poems, Baijiu utensils, Baijiu rituals, Baijiu customs, and the economy of Baijiu. Prospected the future research direction of visualization in Baijiu culture , aiming to provide reference for the research and popularization of methods of visualization in Baijiu culture.

Keywords

Baijiu; Visualization In Culture; Visual Analysis.

1. Introduction

Baijiu, an important intangible cultural heritage of the Chinese nation, has penetrated into all aspects of human life and has had a great impact on history, culture, literature and art, customs and other fields. However, the world knows far less about Baijiu than whisky, vodka, brandy and red wine. In 2019, He [1] conducted a survey on Baijiu culture knowledge among 487 young generation representatives. The results showed that 80% of the new generation did not understand Baijiu culture. In the era of cultural confidence, we need to popularize Baijiu culture and enhance our confidence in Baijiu culture by using scientific and technological means. Data visualization technology extracts visual elements and turns them into visual channel output, so that the audience can quickly grasp important information. It has a unique advantage in the dissemination of Baijiu culture, which can efficiently and intuitively let the audience know Baijiu, understand the Baijiu culture, and promote the internationalization of Chinese Baijiu. With the continuous expansion of the scale and types of big data on Baijiu culture, how to effectively present the big data on Chinese Baijiu culture has become an important research topic. This paper analyzes the latest visualization technology of cultural big data and combines the characteristics of Baijiu culture data to design a visualization scheme of Baijiu culture.

2. Cultural Visualization

2.1 Cultural Big Data Classification

Cultural big data [2] includes three categories: cultural behavior data, cultural spatiotemporal data, and cultural content data.

Cultural behavior data: The development history of human culture is also the history of human efforts to change, influence, and penetrate the natural world. Culture is not only spiritual attributes, but also has distinct practical characteristics. The data record of the practical behavior of human culture becomes One of the important sources of cultural big data.

Cultural spatio-temporal data: Human culture extends along the two-dimensional dimension of time and space in the overall sense. Culture is an orderly and structural temporal and spatial existence, the content information of history and reality can be dynamically associated with behavioral information and spatial information to realize the intelligent interaction between virtual cultural space-time and real cultural space-time.

Cultural content data: The so-called cultural content refers to the "symbols and meaning of culture", the connotation and representation of culture. Cultural content data is the cultural connotation and cultural representation carried in the form of data. It is the digital migration of traditional cultural content completed by means of informatization.

In view of the significant fragmentation of cultural big data, strong reusability, fuzzy boundaries and wide value extension, scholars at home and abroad have used different visualization methods to present behavioral data, spatiotemporal data, and content data in different cultures.

2.2 Domestic Research Progress of Cultural Visualization

At present, the research and application of domestic cultural visualization are in the exploratory stage, and some representative cultural visualization results continue to appear.

2016, Li [3] made a new attempt in the visual application of Chinese classical literature, so as to effectively improve the audience's cognitive efficiency of the book of songs.2017, Li [4] completed the visual design of the poetry activity of Dream of the Red Chamber. Made an innovation in the visualization of multi-dimensional poetry data.2018, Hu [5] visualized the evolution of Song Ci style schools. So that the audience can clearly see the change process of Song Ci style.2019, Zhang [6] made a visual study of Song Ci from multiple angles. Explored the relevance and uniqueness of the themes of poetry works with different historical backgrounds and different life experiences.2019, Wu [7] visualized the cultural landscape of Guanzhong area in Tang poetry. Restored the distribution of the main cultural landscapes in Guanzhong area of the Tang Dynasty.2019, Liu [8] visualized the tracks of ancient celebrities through a three-dimensional interface.2019, Zhang [9] restored the bronze man of acupuncture by visualizing the scalar field in three-dimensional space.2020, Wang [10] made a visual display of the life track of historical celebrities, effectively combined with historical background, deeds and works and spatial results.

2.3 Research Progress of Cultural Visualization Abroad

In recent years, the development of foreign countries in the field of cultural visualization has been quite rapid, with a wide range of cultural types, high value content, and strong practicability, allowing visualization technology to give full play to the cultural field.

2011, Jang [11] used the visualization technology of 3D emotion map to effectively display the characters, emotions, geographic location and other information of the area in South Korea.2013, Han [12] based on the 3D model visualization system of augmented reality, restored cultural sites.2014, Sparavigna [13] showed the social relationships and timetables of the characters in the plots of Shakespeare's plays through the network visualization.2015, Cho [14] constructed a data-based visualization system of Roman history based on a large number of Wikipedia articles.2016, Gupta [15] used geospatial visualization technology to display relevant information about cultural heritage excavated in the process of archaeology.2017, Naranjo [16] used 3D visualization technology to

In the cultural field, text data visualization is not only the extraction of information from keywords, but more importantly, the emotions, intentions and other different dimensions of information contained in the text. See Figure 2.

3.2 Multi-Dimensional Data Visualization

Multi-dimensional data visualization [19] is to explore the distribution rules and patterns of multi-dimensional data, so as to show the relationship between different dimensional attributes. For the types of multi-dimensional data in Chinese Baijiu culture, it is necessary to use multi-dimensional data visualization for effective display.

The two-dimensional scatter chart [20] maps the attribute values of two dimensions to two axes, and then uses different visual elements to reflect the attribute values of other dimensions through graphic marks. See Figure 3.

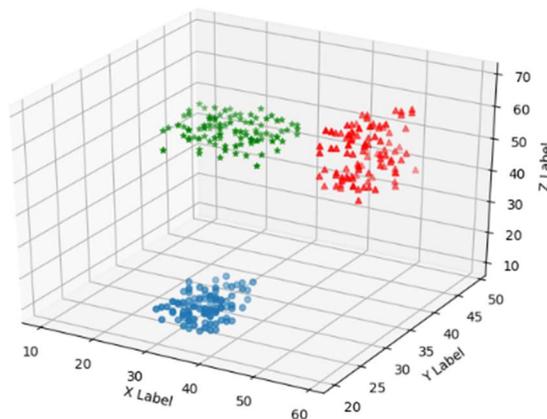


Figure 3. Multidimensional scatter plot

3.3 Network Data Visualization

Network data visualization [21] refers to the visualization of large-scale networks with a large number of nodes and edges in a limited space. For example, visualize the relationship between drinking objects through network data. See Figure 4.

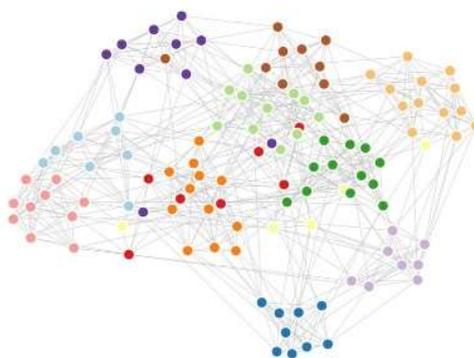


Figure 4. Social network visualization

3.4 Time Series Data Visualization

Time series data visualization [22] emphasizes the evolution of content based on time, extracts and analyzes the relevant content of different time units, and displays continuous analysis results on the time axis. The data of Baijiu culture has obvious time attributes. See Figure 5.

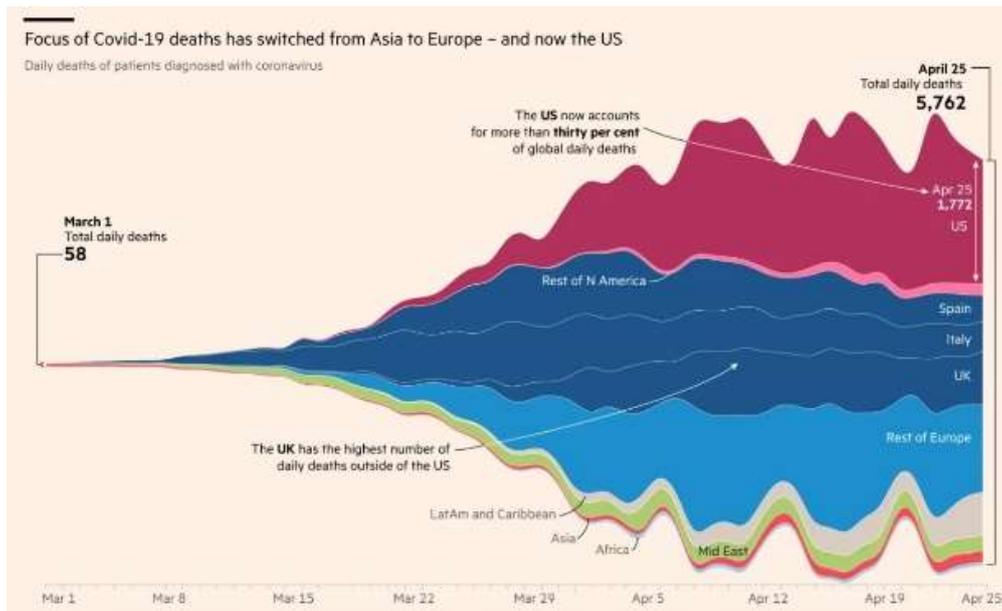


Figure 5. Theme River Diagram

3.5 Geospatial Data Visualization

Geospatial data [23] is data with spatial location information, describing the distribution, relationship, change and other laws of events or natural phenomena. Chinese Baijiu culture has a strong regional color, and it can only be effectively displayed through geographic spatial visualization. See Figure 6.

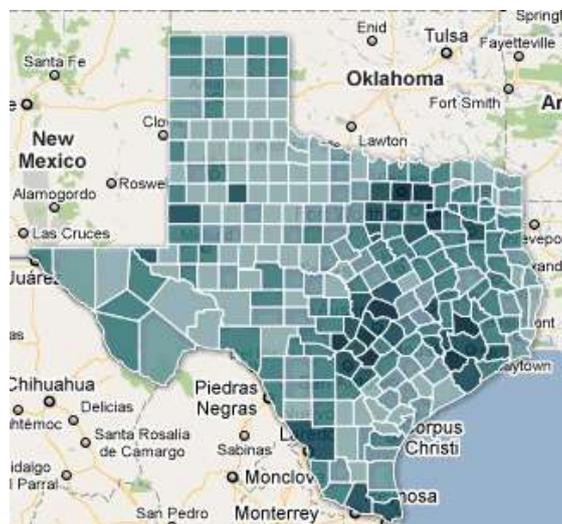


Figure 6. Geospatial visualization

4. Baijiu Culture Visualization Design Scheme

Baijiu culture refers to the general term of material culture and spiritual culture in the production, consumption and circulation of liquor [24]. The poems of Baijiu are treasures of Chinese culture [25], belong to text data. Over time, the shape and function of the Baijiu vessel has changed [26], belong to time series data. The Baijiu rituals and customs of various ethnic groups vary greatly from place to place, and they need to be displayed through different dimensions of time and region [27].

By analyzing the characteristics of the big data of Baijiu culture, combined with visualization techniques such as text data visualization, time series visualization, and geospatial visualization, visual display of different types of Baijiu culture big data, see Table 1.

Table 1. Three Scheme comparing

| Type of Data | Visualization Examples | Baijiu Culture Data |
|-----------------------|------------------------|----------------------------|
| Text data | Figure 1,2 | The poems of Baijiu |
| Multidimensional data | Figure 3 | Baijiu rituals and customs |
| Network data | Figure 4 | Drinkers |
| Time series data | Figure 5 | Baijiu vessel |
| Geospatial data | Figure 6 | Baijiu vessel |

5. Conclusion

From the perspective of the visual application of Chinese liquor culture, this article first collates the latest cultural visualization related achievements at home and abroad, and obtains a visual display method for text data, multi-dimensional data, network data, time series data, and geospatial data in cultural big data. Then, by analyzing the data characteristics of Baijiu culture, the Baijiu culture is divided into poems, Baijiu vessels, Baijiu rituals and customs, and corresponding visual presentation methods are designed according to the big data characteristics of different types of Baijiu culture.

Chinese Baijiu culture is extensive and profound. The visual content of Baijiu culture involved at present is only the tip of the iceberg. In the future, the scale of Chinese Baijiu culture data will become larger and larger, the types will also increase, and the structure will become more and more complex. Innovative visualization technology The application can effectively help a new generation of young people understand Chinese Baijiu culture in depth, promote Chinese Baijiu culture, and enhance their confidence in Baijiu culture, thereby promoting Chinese Baijiu to the world, allowing consumers around the world to understand Chinese Baijiu and accept Chinese Baijiu culture.

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